APPENDIX B

NUCLEAR, BIOLOGICAL, OR CHEMICAL ENVIRONMENT OPERATIONS

Nuclear, biological, and chemical weapons can cause casualties, destroy or disable equipment, restrict the use of terrain, and disrupt operations. They can be used separately or in combination to supplement conventional weapons. The reconnaissance platoon must be prepared to operate in an NBC-contaminated battlefield Operating in an NBC environment degrades the overall effectiveness of the reconnaissance platoon. This appendix prescribes active and passive protection measures to avoid or to reduce the effects of NBC weapons.

The platoon leader selects an NBC defense team to aid him in planning and conducting NBC operations. He also selects, as required, radiological monitoring and survey operators, chemical-agent detection operators, and decontamination teams. There is no required number of teams or operators. However, there should be at least one operator for each radiacmeter and chemical-agent detector kit.

Section I. NUCLEAR ENVIRONMENT

Given the massive destructive and disruptive effects of a nuclear blast, the reconnaissance platoon MUST train to reduce the effects of a nuclear blast on operations.

B-1. NUCLEAR WEAPONS EFFECTS

The main effects nuclear detonations produce include blast, thermal radiation, nuclear radiation, and electromagnetic pulse. The danger from each of these effects depends on the type of weapon and its explosive yield, the height of the burst, the distance from the detonation, and the hardness of the target.

a. **Blast.** Immediately after a nuclear detonation, a high-pressure shock wave develops. It travels away from the point of detonation in all directions at the speed of sound. This shock wave causes most of the destruction created by a nuclear detonation.

(1) Strong winds caused by the passage of the shock wave propel objects such as tree limbs and debris through the air, turning them into destructive missiles.

(2) Exposed soldiers and structures are vulnerable to blast effects. Personnel inside structures can be hurt by the collapse of the structures. Personnel outside can be hurt by flying debris.

b. **Thermal Radiation.** Intense heat and extremely bright light are formed within seconds of a nuclear detonation.

(1) ***Heat.*** The intense heat starts fires in buildings and woods. Such fires can spread quickly due to the burning debris scattered by the blast. The heat can also burn exposed skin.

(2) ***Light.*** The light produced by the detonation can cause temporary or permanent blindness. Temporary blindness, called dazzle, from a daylight detonation can last 5 to 10 minutes. At night, the loss of vision lasts longer because the pupils have enlarged to adapt to the darkness. However, recovery should be complete in 15 minutes. Light can injure eyes permanently if it causes burns within the eye itself. This is likely to occur to those soldiers who are looking at the fireball at the instant of detonation.

c. **Nuclear Radiation.** A nuclear detonation produces two types of nuclear radiation—initial and residual. Both types can injure or kill soldiers.

(1) ***Initial.*** Initial is invisible radiation emitted within the first minute after detonation. It travels at the speed of light and can damage human tissues and blood-forming cells. Since initial nuclear radiation travels so fast, the only way to be protected from it is to be in a protected position before the detonation.

(2) ***Residual.*** Residual is radiation that lasts after the first minute. It consists mostly of neutron-induced radiation and fallout.

(a) Neutron-induced radiation is produced by the neutrons that were made radioactive by the explosion. It exists only on the earth's surface near the point of detonation. The intensity and extent of this radiation depends on the type of soil at the point of detonation, the height of the burst, and the type and yield of the weapon. The only significant source of residual radiation from an airburst weapon is neutron-induced radiation in the soil in a circular pattern beneath the point of detonation.

(b) Fallout is produced when material from the earth is drawn into the fireball, vaporized, and combined with radioactive material to form radioactive particles that fall back to earth. The larger particles fall back right away near the point of detonation. The smaller particles are carried by the winds until they gradually settle to the earth's surface. The area contaminated by fallout can be small, or it can extend over thousands of square kilometers. The radiation dose rate of these areas vary from an insignificant level to a dangerous one.

d. **Electromagnetic Pulse.** Electromagnetic pulse is a massive surge of electrical power, similar to a strong radio signal. It occurs within seconds of a nuclear detonation and is transmitted through the air in all directions from the point of detonation. EMP can damage electrical

components in equipment (especially solid-state, such as radios, radars, computers, and vehicles) and weapon systems (TOWs and Dragons). However, it does not present a physical hazard to soldiers.

B-2. NUCLEAR BURSTS

The different types of nuclear bursts are airbursts, surface bursts, and subsurface bursts.

a. **Airburst.** An airburst is a nuclear detonation above the ground that creates a fireball and does not touch the earth's surface. Fallout or radioactive material from an airburst has no military significance unless rain or snow falls through the radioactive cloud and brings the material to earth. Neutron-induced radiation is the major radiation hazard.

b. **Surface Burst.** A surface burst is a nuclear detonation that occurs at such a height that the fireball touches the surface of the earth. Blast, thermal radiation, and initial nuclear radiation are not as widespread as from an airburst. Induced radiation is present, but it is masked by fallout. The fallout produced by a surface burst is a dangerous hazard because it can cover a large area with high levels of radioactivity.

c. **Subsurface Burst.** A subsurface burst is a nuclear detonation that occurs beneath the surface of the earth. If the fireball of this type burst breaks through the earth's surface, it produces fallout. Thermal radiation is not a significant hazard as it is absorbed by the soil. Blast effects are also reduced, but shock waves passing through the ground or water extend for some distance. Residual radiation occurs in and around the crater.

B-3. NUCLEAR HAZARD WARNING

To warn the reconnaissance platoon of a friendly nuclear detonation, the battalion issues a warning message. The format for this warning is prescribed by SOP and should contain a proword indicating that the message is a nuclear strike warning. It also gives instruction on what protective measures to take, or gives the order to evacuate the area. The warning indicates the expected time and general location of the detonation. Once the warning is received by the platoon, the platoon leader disseminates it through the platoon using the chain of command. He also specifies protective measures.

B-4. NUCLEAR HAZARD ALARM

The platoon SOP prescribes a nuclear hazard alarm and also a signal to indicate that the hazard is no longer present. The standard nuclear hazard alarm is the vocal alarm FALLOUT. The standard signal for indicating that the hazard is no longer present is the vocal signal ALL CLEAR. As soon as a nuclear hazard is detected, the nuclear hazard alarm is given. It

can be given by any soldier detecting the hazard. Once the alarm has been initiated, it must be passed throughout the platoon as quickly as possible. When the hazard no longer exists, the ALL CLEAR signal is given. This is normally initiated by the platoon leader and then passed throughout the platoon as quickly as possible.

B-5. PROTECTION

The best protection from the immediate effects of a nuclear detonation is cover infighting positions, culverts, ditches, or behind hills. Soldiers face away from the explosion, close their eyes, and coverall exposed skin. They stay down until the blast wave passes and until the debris stops falling. Then, they check for (and treat) injuries, check damage to equipment and supplies, and prepare to continue the mission.

a. Radiation is the only nuclear effect that remains after a nuclear detonation. It can last for days or even years, and it can cover a large area. Since radiation cannot be detected by human senses, radiac equipment must be used to detect its presence. The procedures for radiological monitoring, surveying, and reporting must be prescribed by SOP. (For more information, see FM 3-3.)

b. If the reconnaissance platoon stays in a fallout area, all soldiers stay in positions that have overhead cover if possible. They cover their mouths and noses with scarves or handkerchiefs to prevent from inhaling radioactive particles. The teams continually monitor the radiation level in the area.

c. Once the fallout has passed, soldiers brush the radioactive dust off their clothing and scrape the dirt from the area around them. Radiacmeter operators continue to monitor and report radiation levels. All soldiers wash themselves and their equipment when possible. The time the platoon stays in a contaminated area depends on the amount of radiation that the soldiers have been exposed to, the intensity of the radiation, the protection available, and the needs of the mission.

B-6. NBC SURVEY

Radiological surveys are determined by the degree and extent of radiological contamination in a specific area. They are usually directed by the battalion and are performed by one or more survey parties under the control of a battalion control party. The platoon may be required to survey an area or to report areas requiring survey. A ground survey party includes a monitor who operates a dose rate meter and records data, and an assistant who can be a driver, RATELO, or both. More soldiers can be included for security. Ground survey parties follow a prescribed course and report the dose rate, location, and time of reading at designated points. Readings are taken with the survey meter held 1 meter above the

ground (waist-high). In open areas, readings are taken at least 10 meters from buildings or other large structures. In built-up areas, they are taken in the center of the street or at intersections. Readings are recorded on DA Form 1971-1-R. The radiacmeter should be zeroed before each reading. When operating in a nuclear environment, the reconnaissance platoon closely monitors the amount of radiation it has already absorbed (dose) and the amount each soldier is exposed to (dose rate). The IM-93A/UD dosimeter or the AN/PDR-75 radiac set are used for dose rate. Designated operators should be trained to properly use this equipment. (For more information, refer to TM 11-6665-232-12, TM 11-6665-214-10, TM 11-6665-251-10, and TM 11-6665-236-12.)

a **IM-93A/UD Dosimeter.** The IM-93A/UD dosimeter indicates the total radiation dose received by soldiers. The meter is the size of a fountain pen and is easy to read. The platoon leader records the times and amounts of each reading. SOP determines how often to initiate readings and reports. At prescribed time intervals, the platoon leader reports readings to the battalion. The format for this report is prescribed by SOP. (For more information, see FM 3-3.)

NOTE: For military purposes, one roentgen equals one centigray. The radiation received by a soldier is measured and expressed in cGys.

b. **IM-174A/PD Radiacmeter.** The IM-174A/PD radiacmeter is used for area monitoring and survey. It measures gamma radiation in units from 0 to 500 cGys per hour.

(1) Each radiological monitoring and survey team has two operators (a primary and an alternate). These soldiers must be trained in the use and maintenance of the devices and in the techniques of radiological monitoring and survey.

(2) Radiological monitoring and survey starts on the order of the battalion or IAW the SOP. When a contaminated area is detected, the radiological monitoring and survey team marks the area with radiological contamination markers. The team also records and reports to the battalion, using the NBC 4 report, the radiation dose rates, and the time and location of each reading.

(3) The radiological monitoring and survey team conducts either periodic or continuous monitoring. During periodic monitoring, the team monitors different points within the area at least once each hour. The team conducts continuous monitoring when—

- The platoon receives a fallout warning.
- The platoon is moving.

- A nuclear detonation is reported, seen, or heard.
- Radiation above 1 cGy per hour is detected by periodic monitoring.
- Upon order of the platoon leader.

(4) The team stops continuous monitoring on order from the platoon leader or when the dose rate falls below 1 cGy per hour (except for units on the move, as they could enter a contaminated area anytime en route).

Section II. CHEMICAL OR BIOLOGICAL ENVIRONMENT

Since Threat forces have both chemical and biological weapons, the reconnaissance platoon might have to operate under active CB conditions. These weapons can be used alone or with nuclear or conventional weapons. Regardless of how these weapons are used, the platoon must be able to survive and continue its combat mission. To ensure this, the platoon must be trained to meet the NBC standards of proficiency.

B-7. CHARACTERISTICS OF CHEMICAL AGENTS

Chemical agents are used to cause casualties, degrade performance, slow maneuver, restrict terrain, and disrupt support. They can cover large areas and may be placed on a target as a vapor, liquid, or aerosol. Chemical agents can be disseminated by artillery, mortars, rockets, missiles, aircraft spray, bombs, and land mines. (See Figure B-1 for additional information on characteristics of chemical weapons.)

B-8. CHARACTERISTICS OF BIOLOGICAL AGENTS

Biological agents include pathogens (microorganisms that cause disease in man, animals, and plants) and toxins (poisonous substances produced as by-products of pathogens). These agents may be dispersed as aerosols by generators, explosives, bomblets, missiles, and aircraft. Harmful germs may also be spread by the release of infected insects, such as flies, mosquitos, fleas, and ticks.

B-9. ALARMS FOR CHEMICAL HAZARD OR ATTACK

Soldiers immediately stop breathing, mask, and give vocal or visual signals when chemical agent symptoms are displayed or when the M8A1 alarm sounds.

a. Standard alarms include the vocal signal GAS, prescribed arm-and-hand signals, automatic chemical-agent alarms, rapid and continuous beating on any metal object that produces a loud noise, a succession of short blasts on a vehicle horn or any other similar device, or a broken warning siren sound (for example, 10 seconds on, 10 seconds off). (Figure B-2, page B-8.)

Type of Agent	Symbol	Means of ID	Symptoms in Man	Effects on Man	Rate of Action	Normally Dissemi-nated	Protection Required	Decontamination
Nerve	GA GB GD	M256, M18A2, M19 M8/M9 paper, M8A1 alarm	Difficulty breathing sweating,drooling, nausea,vomiting, convulsion, and dim vision.	Incapacitates at low concentrations; kills if inhaled or absorbed through the skin or eyes.	Very rapid by inhala-tion, slower through skin.	Aerosol or vapor	Protective mask and protective clothing	STB slurry; household bleach; 10% solution of lye or washing soda; DS2: steam and ammonia in confined area; hot soapy water; M258-series kit.
	V				Delayed through skin; rapid through eyes.		Protective mask and protective clothing	
Blood	AC CK	M256, M18A2 M19	Rapid breathing, convulsions, and coma.	Kills if high concen-trations ara inhaled.	Rapid	Aerosol or vapor	Protective mask	None needed in field.
Bluster	HD HN HL L	M256, M18A2, M19, M8/M9 paper	No early symp-toms. Searing of eyes and stinging of skin.	Blusters skin and respiratory tract; can cause tempor-ary blindness. Some agents sting and form wheals on the skin.	Bluster delayed hours to days; eye effects more rapid. Mustard lewisite, and phosgene oxime very rapid.	Liquid or droplets	Protective mask and protective clothing	STB, DS2, household bleach, M258-searies kit. Try lye, fire; wash with soap and water.
	CX		Powerful irritation of eyes, nose, and skin.					

Figure B-1. Chemical-agent characteristics.

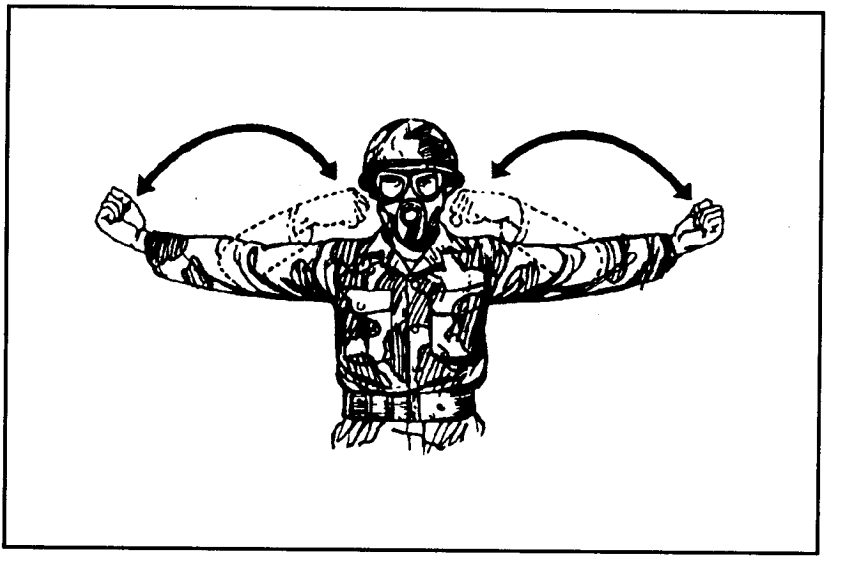

Figure B-2. Standard alarm signal.

b. The vocal ALL CLEAR signals that the danger no longer exists. It is given by the platoon leader or squad leader after prescribed unmasking procedures have been completed.

B-10. PROTECTIVE MEASURES IN CHEMICAL AND BIOLOGICAL WARFARE

A CB attack can occur without warning. Soldiers must know exactly what to do and how to do it without hesitation. Their lives depend on it.

a. **Chemical Attack.** A soldier's main protection against a chemical attack is his protective mask. The mask protects against inhaling chemical agents. If an attack is imminent or if chemicals have already been employed, soldiers should mask—

(1) When chemical alarms or detection kits signal the presence of chemical agents.

(2) When any artillery, mortar, rocket, or aircraft attack with other than HE munitions occurs on or near their position.

(3) When smoke or mist of an unknown source appears in the area.

(4) When a chemical attack is suspected for any other reason, such as enemy soldiers seen wearing protective masks and clothing, or presence of dead animals or people with no outward sign of injury.

(5) When the platoon must enter an area known to be or suspected of being contaminated by a chemical or biological agent.

(6) When, for no obvious reason, soldiers have particular symptoms.

- A runny nose.
- A feeling of choking or tightness in the chest or throat.
- Blurred vision or trouble focusing.
- Difficulty in or increased rate of breathing.

b. **Biological Attack.** Information on the enemy's use of biological agents is passed from higher to lower. The best local defense against biological warfare is strict enforcement of all preventive medicine (prescribed immunizations) and field sanitation measures and high standards of personal hygiene. Leaders must ensure that water and food resupply is obtained from approved sources.

B-11. INDIVIDUAL ACTIONS BEFORE A CHEMICAL ATTACK

If the reconnaissance platoon learns that it is subject to an imminent chemical attack or downwind vapor hazard, each soldier should take the following precautionary measures:

- Place the chemical-agent alarm into operation.
- Assume MOPP level 2, 3, or 4 (depending on the situation).
- Attach M8/M9 paper to personnel and vehicles.
- Cover as much equipment as possible.
- Ensure decontamination equipment is accessible.
- Prepare to move from the location on order.

B-12. ACTIVE AVOIDANCE MEASURES

Active avoidance measures taken by the battalion and the reconnaissance platoon are those measures that specifically avoid, control, or lessen NBC hazards.

a. Commanders at all levels need to know about contamination hazards and where uncontaminated areas are located. They can obtain this information through the NBC warning and reporting system, and through NBC reconnaissance.

(1) ***Reconnaissance.*** NBC reconnaissance seeks to locate a chemical hazard in a specified area before the battalion moves into or through the area. Any battalion element can be tasked to conduct a reconnaissance to locate chemical hazards. NBC reconnaissance techniques are similar to conventional reconnaissance techniques.

(2) ***Purpose.*** The purpose of NBC reconnaissance is to find the boundary of contamination and the routes around, or through a contaminated area. The reconnaissance platoon can determine the following:

- Chemical agents that are present.
- Type of chemical agents.

- Location of the chemical agent.
- Boundaries of the contaminated area.
- Routes through or around the contaminated area.

b. The battalion commander uses the information obtained by the reconnaissance platoon to determine the chemical agents in the area of operation. This information is helpful to the battalion staff and can affect future operations. The S3 directs the reconnaissance platoon to reconnoiter specific areas for signs of NBC contamination. To increase the level of expertise within the reconnaissance platoon, the battalion commander may attach a chemical officer or an NCO to the platoon. These individuals work directly for the reconnaissance platoon leader.

c. Once the commander designates the areas he wants checked for contamination, the reconnaissance platoon leader develops the plan. The exact route and where the contamination checks will occur are critical. The route may be used by elements of the battalion. It is important that every soldier be aware of the route and, if necessary, lead someone along the route. The reconnaissance platoon conducts contamination checks at 250-meter intervals, which are based on METT-T or directed by the chemical officer. Checks are conducted in areas where chemical agents tend to collect: low spots, small valleys, and sheltered locations. (For more information on where agents may collect, see FM 3-6.)

d. If the reconnaissance platoon detects a chemical agent, it marks the location unless ordered otherwise. Then the reconnaissance platoon moves in the opposite direction of travel until it is out of the contaminated area. It moves laterally a predetermined distance and direction. The platoon then begins to move in the original direction of travel. This procedure is followed until the reconnaissance platoon reaches the battalion boundary or finds a clean route through the contamination.

e. The method the reconnaissance platoon uses to report information depends on the urgency. If time is critical, the information is passed over the radio using the NBC 4 report format. If time is not critical or if radio assets do not permit passing the information over the radio, the information is recorded and carried back to the requestor. The DA Form 1791-2-R is used to record and transfer reconnaissance information.

f. Chemical surveys are required when the commander needs detailed information on the size of a contaminated area. Unlike radiological surveys, the intensity of chemical contamination cannot be determined. However, the prime interest is learning how large the contaminated area is and if there are clear areas or routes within the area. Time is a major factor in planning and conducting chemical surveys. Each detection test requires time. The primary concern in surveys is to determine the areas

contaminated by persistent chemical agents. Most testing is accomplished during the survey using M8 or M9 detector paper. Periodic tests are accomplished using the M256 detection kit to ensure that only the chemical agent being tested with the detection paper is present. (For more information on surveys, see FM 3-3.)

B-13. INDIVIDUAL ACTIONS AFTER A CHEMICAL ATTACK

Soldiers check for casualties, give first aid, conduct the basic skills of decontamination (personal wipe down and operator spraydown), identification or detection of the agent, send NBC 1 or NBC 4 report, request permission to move, request decontamination, and mark the area to warn friendly troops.

B-14. CONDITIONS FOR UNMASKING

The senior soldier present follows these procedures:

a. **Procedures With Detector Kit.** The M256 chemical-agent detector kit is used to test for the presence of chemical agents. This takes about 16 minutes. If no evidence of agents appears, one or two soldiers unmask for 5 minutes, then remask. They are observed for chemical-agent symptoms for 10 minutes in a shady area. (A shady area is used since light causes contraction of the pupils, which could be interpreted as a nerve-agent symptom.) If no symptoms appear, the squad or platoon contacts higher headquarters for permission to unmask. Once permission is granted, all soldiers can safely unmask.

b. **Procedures Without Detector Kit.** The following is an emergency field expedient when friendly elements have been masked for a longtime, when there are no remaining signs of chemical agent use, and when the platoon has no detector kit. One or two soldiers are selected to hold deep breaths, break the seals of their masks, and keep their eyes wide open for 15 seconds. They then clear their masks, reseal them, and wait for 10 minutes. If symptoms do not appear after 10 minutes, the same soldiers again break their seals, take two or three breaths, and clear and reseal their masks. After another 10-minute wait, if symptoms have not developed, the same soldiers unmask for 5 minutes and then remask. After 10 more minutes, if symptoms have not appeared, all soldiers can safely unmask once permission is granted from higher headquarters. They should all remain alert for the appearance of any chemical symptoms. This procedure takes about 35 minutes.

B-15. EFFECTS ON EQUIPMENT

CB agents have little affect on the mechanical operation of equipment. However, liquid chemical-agent contamination on equipment can restrict

the equipment's use until it is decontaminated. The platoon must be prepared to decontaminate its equipment.

B-16. EFFECTS ON TERRAIN

Liquid-chemical agents can restrict the use of terrain and buildings. The reconnaissance platoon does not decontaminate terrain; this is accomplished naturally by the weather. However, it can take a long time. Therefore, the platoon bypasses contaminated areas when possible. When this is not possible, the platoon must cross the contaminated area.

WARNING

BEFORE CROSSING A CONTAMINATED AREA, SOLDIERS MUST PUT ON PROTECTIVE GEAR. AFTER CROSSING A CONTAMINATED AREA, SOLDIERS MUST DECONTAMINATE THEMSELVES AND THEIR EQUIPMENT.

B-17. PROTECTIVE EQUIPMENT AND CLOTHING

A soldier's main protection against a CB attack is his protective mask. It prevents him from inhaling chemical or biological agents. (Figure B-3.)

a. **Chemical Attack.** For full protection against liquid chemical agents, soldiers must wear their protective masks and hoods, and chemical-protective overgarments (to include helmet cover), overboots, and gloves.

(1) Once chemical agents have been employed, or while the threat of a chemical attack exists, the platoon leader decides whether to keep all soldiers or only some of them masked and in chemical-protective clothing. This is called mission-oriented protective posture. When feasible, the platoon leader specifies the degree of protection before a mission. (The degree of protection may be prescribed by battalion.) Later, the platoon leader can direct that the protection be modified according to the threat, temperature, and workload.

(2) The MOPP level directed by the platoon leader determines what equipment and clothing they must wear and use, and what precautionary measures they must apply. Therefore, the commander and his subordinate leaders must know MOPP concepts. MOPP procedures are stated in FM 3-4 but should be stated in the SOP.

(3) Figure B-3 shows the requirements for protective equipment and clothing for different MOPP levels.

b. **Biological Attack.** The best defense against biological agents is strict enforcement of all preventive medical and field sanitation measures and high standards of personal hygiene. The duty uniform and gloves protect against bites from insects (such as mosquitoes and ticks) that can carry disease-causing germs. Clothing should be buttoned; trouser legs

should be tucked into boots. Covering the skin lessens the chances of biological agents entering the body through cuts and scratches. It also prevents disease-carrying insects from reaching the skin. Insect repellents and insecticides are effective against most disease-carrying insects. High standards of sanitation also improve protection against some insects.

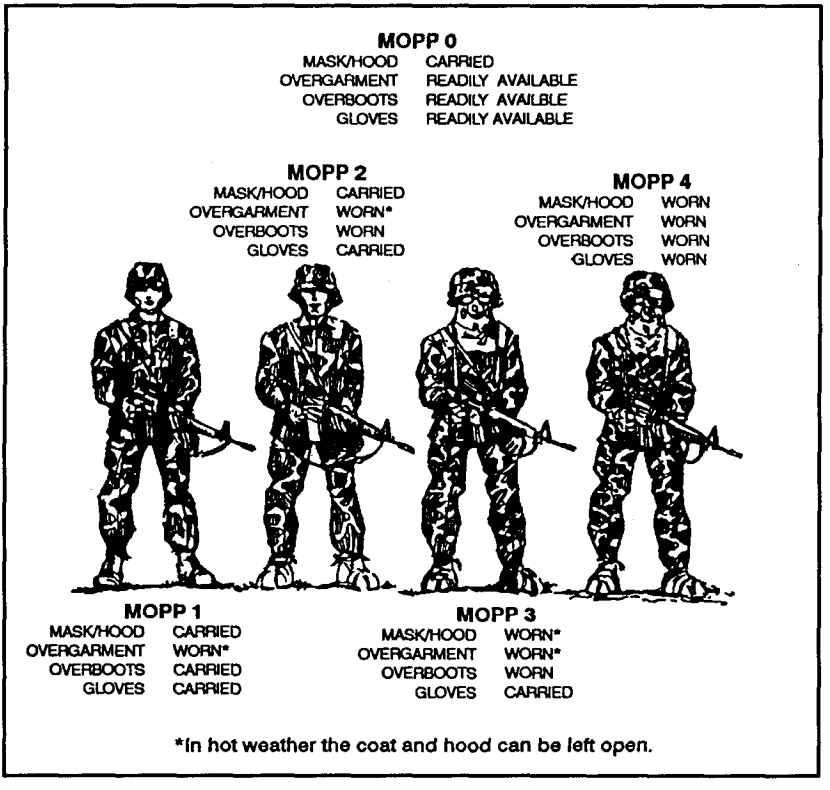

Figure B-3. Protective equipment and clothing for MOPP levels.

B-18. TREATMENT OF CHEMICAL-AGENT CASUALTIES

The casualties from a chemical attack must be treated as soon as possible to prevent further injuries or complications. This treatment includes both first-aid measures and decontamination. The symptoms and first-aid steps for chemical agents are as follows:

a. **Nerve Agents.** The symptoms of nerve-agent poisoning include runny nose, blurred vision, tightness in the chest, difficulty in breathing, drooling, nausea, twitching, and convulsions. The administration of the

Mark-I automatic injector and convulsant antidote for nerve agent is the first-aid measure for soldiers demonstrating symptoms of nerve-agent poisoning. (Refer to FM 8-285 and FM 21-11 for additional information.)

b. **Blister Agents.** The symptoms of blister-agent poisoning include redness of the skin in 4 to 6 hours and blisters in 6 to 12 hours after exposure. These symptoms can be delayed for several hours or days, depending on the type agent used. There is no first-aid treatment for blister-agent poisoning other than decontamination. If burns or blisters develop after decontamination, the soldier covers the area with sterile gauze or a clean cloth to prevent infection. The blisters should not be broken. However, if they do break, the blisters should be treated as open wounds.

c. **Blood Agents.** The symptoms of blood-agent poisoning include increased breathing rate, dull-throbbing headache, and nausea. First-aid procedures for blood-agent poisoning is to keep the casualty comfortable and evacuate to a medication treatment facility (MTF). (Refer to FM 8-285 for additional information.)

d. **Choking Agents.** The symptoms of choking-agent poisoning include coughing, choking, nausea, and headache. The first-aid treatment for choking-agent poisoning is to keep the affected soldier still, warm, and comfortable.

B-19. DECONTAMINATION OF SOLDIERS AND THEIR EQUIPMENT

All soldiers must know decontamination procedures.

a. **Chemical Agent.** Each soldier has an M258A1 or M291 decontaminating kit. There is no specific place to carry the M258A1 or M291 kit. Soldiers use the M258A1 or M291 kit to decontaminate the skin and individual equipment.

b. **Biological Agent.** Soldiers decontaminate themselves by showering with soap and hot water. Germicidal soaps are used, if available. The nails should be thoroughly cleaned and the hairy parts of the body should be scrubbed. Contaminated clothing is washed in hot, soapy water if it cannot be sent to a field laundry for decontamination. Cotton items can be boiled. Soldiers wash their contaminated equipment in hot, soapy water and allow it to air out.

c. **Equipment and Vehicles.** The reconnaissance platoon is responsible for partial decontamination of its equipment and personnel. The NBC defense company performs complete decontamination. (For more information, see FM 3-5.)